



GOVERNMENT COLLEGE OF ENGINEERING, KALAHANDI

**AT: Bandopala, PO: Risigaon, Dist: Kalahandi,
Bhawanipatna-PIN 766002, ODISHA.**


No: GCEK/TEQIP/586

Date:03/08/2019

CORRIGENDUM

Corrigendum to the Tender Call Notice No: GCEK/TEQIP/584 and 585 issued on dt.02.08.2019.

Regarding the opening of price bid of both the Tenders (Page-1), the date of opening of price bid may be read as 24/08/2019.


03/08/2019
Principal
GCEK, Bandopala
Kalahandi, Bawanipatna



GOVERNMENT COLLEGE OF ENGINEERING, KALAHANDI
AT: Bandopala, PO: Risigaon, Dist: Kalahandi,
Bhawanipatna-PIN 766002, ODISHA.

No: GCEK/TEQIP/584

Date: 02/08/2019

TENDER CALL NOTICE (FOR TWO BID SYSTEM)

Sealed tenders are invited from the reputed firms/ISO 9001 certified companies/Authorized Dealers/Manufacturers with valid documents and GSTIN for supply of different laboratory equipments of Electrical Engineering Department (TEQIP-III/2019/OD/geck/78,TEQIP-III/2019/OD/geck/79,TEQIP-III/2019/OD/geck/80 ,TEQIP-III/2019/OD/geck/81 ,TEQIP-III/2019/OD/geck/82 ,TEQIP-III/2019/OD/geck/83,TEQIP-III/2019/OD/geck/84,TEQIP-III/2019/OD/geck/85 ,TEQIP-III/2019/OD/geck/86,TEQIP-III/2019/OD/geck/87,TEQIP-III/2019/OD/geck/88,TEQIP-III/2019/OD/geck/96,TEQIP-III/2019/OD/geck/97). Interested parties may apply in the prescribed tender document which can be downloaded from the website (<http://www.gcekbpatna.ac.in>) and the filled-in application form along with a non-refundable fees of **Rs.1, 770/-** (Rupees one thousand & seven hundred seventy) only in shape of demand draft in favour of “**Principal, Government College of Engineering, Kalahandi**” payable at **Bhawanipatna** should reach on or before 19/08/2019 by **12.00 Noon**. The Technical Bids will be opened on 19/08/2019 at **3.00 PM** and the Price Bids will be opened on 24/09/2019 at **3.00PM**. The sealed tenders super-scribing the package number should be submitted to “The Principal, Govt. College of Engineering, Kalahandi,Bhawanipatna, At: Bandopala, Po:Risigaon, Bhawanipatna-766002.” through speed post/registered post only. Tenders received beyond the scheduled date and time will be summarily rejected.

The undersigned reserves the right to extend the date and accept or reject any or all the tenders without assigning any reason thereof.

Sd/-
Principal
GCEK, Bhawanipatna

BIDDING DATA SHEET

A. GENERAL INFORMATIONS:

Sl. No.	Item	Details
1	Package No.	TEQIP-III/2019/OD/geck/78 TEQIP-III/2019/OD/geck/79 TEQIP-III/2019/OD/geck/80 TEQIP-III/2019/OD/geck/81 TEQIP-III/2019/OD/geck/82 TEQIP-III/2019/OD/geck/83 TEQIP-III/2019/OD/geck/84 TEQIP-III/2019/OD/geck/85 TEQIP-III/2019/OD/geck/86 TEQIP-III/2019/OD/geck/87 TEQIP-III/2019/OD/geck/88 TEQIP-III/2019/OD/geck/96 TEQIP-III/2019/OD/geck/97
2	Name of the Work	PROCUREMENT OF DIFFERENT LABORATORY EQUIPMENTS OF ELECTRICAL ENGINEERING DEPARTMENT
3	Officer inviting tender	HOD, Electrical Engineering
4	Accepting Authority	PRINCIPAL, GOVERNMENT COLLEGE OF ENGINEERING KALAHANDI.

B. BID INFORMATION:

1	Time period assigned for Completion of supply.	30 (thirty) days from the date of issue of supply order.
2	Last Date & time of submission of Bid	Time: 12.00 Noon Date:19/08/2019
3	Cost of Tender Paper (Clause No.6.1of DTCN.)	
	i	Bank draft for Tender Paper Cost
	ii.	in favour of
	iii.	payable at
		Rs.1770/- inclusive GST
		PRINCIPAL , GOVERNMENT COLLEGE OF ENGINEERING KALAHANDI
		Bhawanipatna
4	Bid Security (Clause No.5.1 of DTCN.)	
	i	Amount
	ii	Pledged in favour of
	iii	payable at
		1% (One Percentage) of the tender value package wise.
		Principal , Government College of Engineering Kalahandi
		Bhawanipatna

	iv	Type of instrument	As specified in the Bid document
5	Bid validity period (Clause No.16.1 of DTCN)		90 days from the date of opening of Technical bid.
6	Currency of Contract		Indian Rupees
7	Language of Contract		English
8	Date of opening of Technical bid		Dt.19/08/2019 at 3 PM
9	Date of opening of Price bid/ BOQ		Dt.24/08/2019 at 3 PM
10	Performance Security		10% of the tender value in the form of Bank Guarantee from any Nationalized Bank valid for three months beyond the Guarantee/ Warranty period.

Note: In the Event of the date specified for bid receipt and opening being declared as a closed holiday for the purchaser's office, the due date for submission of bids and opening of bids will be the following working day at the appointed times.

DETAILED TENDER CALL NOTIC **(DTCN)**

The tender document is available in the official website of the college i.e. <http://www.gcekbpatna.ac.in>. All bids must be accompanied by cost of tender paper (i.e. Rs1770/-) and Bid Security (i.e. of 1% tendered value) in shape of Account Payee demand draft in favor of "Principal, Government College of Engineering, Kalahandi" payable at Bhawanipatna from any nationalized bank with copies of relevant documents of the bidder, failing which the bid will be liable for rejection. All the bidders are required to quote the price of all the items of a package, else bid document will be cancelled. The bid security in other form like cash, personal cheque etc. will not be accepted and in such case bid will be rejected. Interested parties may submit the tender documents on or before **19/08/2019** at **12.00 Noon**. The Technical Bids will be opened on **19/08/2019** at **3 PM** and the Price Bids will be opened on **24/09/2019** at **3 PM**.

The authority reserves the right to extend the date and accept or reject any or all tenders without assigning any reason thereof.

GENERAL TERMS & CONDITIONS OF CONTRACT

ADDENDUM

The bid is to be submitted in two covers separately if otherwise eligible.

(i) Cover-I -Technical bid

(ii) Cover-II- Financial bid

The Bidders shall furnish as part of the Bid the following Documents in cover-I (Technical bid) establishing Bidders eligibility and qualification to perform the contract to the Purchaser's satisfaction.

1. Eligible Goods and Services

- 1.1 The Bidders shall quote the articles of reputed make as per list of equipments enclosed in this tender document at the end with make/brand and model names as per the Bid technical specifications (in **Annexure-III**) in **Annexure-IV** and may quote alternative standards in the Bid. The articles quoted should have adequate service facilities.

2. Documents Establishing Bidder's Eligibility & Qualification

2.1 The Bidders shall furnish as part of the Bid the following Documents in cover-I (Technical bid) establishing Bidder's eligibility and qualification to perform the contract to the Purchaser's satisfaction.

a) **FOR ORIGINAL MANUFACTURER:**

- i) **Company Registration Certificate** (in case of Company registered under Company Act 1956), **Partnership deed**, duly registered before competent authority (in case of Partnership firm) and **documents from appropriate authority depicting the authority/license** to manufacture laboratory testing equipment That the Bidder, who is not a manufacturer / producer, has been duly authorized by the manufacturer/ producer to supply the goods.
- ii) Valid ISO certificate.
- iii) EMD/ Bid security in proper shape as mentioned at clause 5.1 of DTCN.
- iv) Cost of Tender paper as mentioned at clause 6.1 of DTCN.
- v) GST registration certificate.
- vi) Valid GST clearance certificate.
- vii) PAN card (in the name of Company in case of Company/Partnership firm and in the name of the Proprietor in case of Proprietary firm).
- viii) Bid Declaration Form / Verification & Undertaking in affidavit form on stamp paper of Rs 100/- duly signed before Notary or any appropriate Authority as per format in Annexure-II.

NOTE:

- a) If the bid is made by a Proprietary firm, the bid declaration form shall be signed by the Proprietor & the bidder shall furnish **type-written full name and name of his/her address** in declaration form.
- b) If the bid is made by a firm in partnership, the bid declaration form shall be signed by the managing partner or any other partner holding the Power of Attorney for the firm (**with type-written full name and name of his/her firm with its current address**), in which case a certified copy of the power of attorney in affidavit form shall accompany the tender.
- c) If the bid is made by a Company or a Corporation, the bid declaration form shall be signed by the managing director or a duly authorized person holding Power of Attorney on behalf of the company for signing the bid (**with type-written full name and name of his/her firm with its current address**), in which case a certified copy of the Power of Attorney shall also be submitted.
- ix. Details of make/brand with specification & logo etc. of the machineries & equipment package wise duly filled in as per format in **Annexure-IV**
- x. Performance statement as per format in **Annexure-V** with documentary proof for each item of the package.
- xii. No Relation Certificate as per Format in **Annexure-VIII**.
- xiii. Details of the bidder"s service center as per format in **Annexure-IX**.
- xiv. Proof of Annual average turnover of Minimum of Rupees Ten Lakh in last 3(three) financial years certified by the Chartered Accountant as per format (**Annexure-VI**).
- xv. Checklist duly filled in as per details in **Annexure-IA**.

- b) **FOR AUTHORISED DEALER/ DISTRIBUTOR:**
- i. Manufacturer's authorization as per Format in **Annexure-VII**.
 - ii. Valid Documents of the manufacturer as applicable.
 - iii. Valid ISO certificate of the manufacturer.
 - iv. EMD/ Bid security in proper shape as mentioned at clause 5.1 of DTCN.
 - v. Cost of Tender paper as mentioned at clause 6.1 of DTCN.
 - vi. GST registration certificate.
 - vii. Valid GST clearance certificate.
 - viii. PAN card (in the name of Company in case of Company/Partnership firm and in the name of the Proprietor in case of Proprietary firm).
 - ix. Bid Declaration Form / Verification & Undertaking in affidavit form on stamp paper of Rs 100/- duly signed before Notary or any appropriate Authority as per Format in **Annexure-II**.

NOTE:

a) If the bid is made by a Proprietary firm, the bid declaration form shall be signed by the Proprietor & the bidder shall furnish **type-written full name and name of his/her firm with its current address** in declaration form.

b) If the bid is made by a firm in partnership, the bid declaration form shall be signed by the managing partner or any other partner holding Power of Attorney for the firm (**with type-written full name and name of his/her firm with its current address**), in which case a certified copy of the power of attorney in affidavit form shall accompany the bid.

c) If the bid is made by a Company or a Corporation, the bid declaration form shall be signed by the managing director or a duly authorized person holding Power of Attorney on behalf of the company for signing the bid

(**with type-written full name and name of his/her firm with its current address**), in which case a certified copy of the Power of Attorney shall also be submitted.

x. The bidder has to mention make/brand specification & logo etc. of original manufacturer only for the equipment/machineries of the packages to be supplied in **Annexure-IV**

xi. Performance statement as per **Annexure-V** with documentary proof.

xii. Proof of Annual average turnover Minimum of Rupees Five Lakh for Package Four and Twenty Lakh for remaining Packages 3(three) financial years certified by the Chartered Accountant as per format (**Annexure-VI**).

xiii. No Relation Certificate as per Format in **Annexure-VIII**.

xiv. Details of the bidder's service center as per format in **Annexure-IX**.

xv. Checklist duly filled in as per details in **Annexure-IB**.

- 2.2 Copies of valid GSTIN/STCC and ITCC/Non-Assessment Certificates shall be furnished by the Bidder and the originals of the above certificates shall be produced to the purchaser before placement of notification of award. In case of outside State Bidders, the concerned firm is required to submit copy of the Non- Assessment Sales Tax Clearance Certificate issued by competent Sales Tax authority of the State of Orissa in favour of their firm along with copy of the GSTIN & Income Tax Clearance Certificate. Any Bidder failing to submit the above documents the Bid of the firm may be rejected.

3. Documents Establishing Goods Eligibility

- 3.1 The goods offered against the schedule of requirement of goods should be in accordance with the stipulated specifications.

TECHNICAL SPECIFICATIONS:-The machinery/ equipment to be supplied should be genuine **IS/ISI standard** and also strictly as per the detailed technical specifications attached at the end of the bid document (**Annexure-III**).The bidder has to specify the name of manufacturer, make/brand with detail specification and model in **Annexure-IV**.

In case of authorized dealer/ distributor, the bidder has to mention make, brand, specification & logo etc. of original manufacturer only. If the authorized dealer of a manufacturing company proposes to supply any brand or make other than that of the original manufacturer, then the same shall not be acceptable.

- 3.2 The documentary evidence may be in the form of Literature, pamphlets, manuals, drawing, circuit diagram etc. and shall furnish :

- a) Detailed description of goods with essential technical and performance characteristics.
- b) A list giving full particulars, including available source and current price of spare parts, special tools etc. necessary for proper and continuing function of the goods for a period of two years following the commencement of the use of the goods by the Purchaser.

4. **Bid Price**

4.1 The Bidder shall quote their lowest possible price (in **Annexure-XIV**) (as per list of equipments for different categories enclosed in this tender document) & prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to any variation.

4.2 The contract price shall include the cost of the Goods, Charges towards Packing, forwarding, handling, insurance, freight, incidental service, installation & commissioning of the goods and training to the consignee's personnel at site.

4.3 The Bidder shall furnish the breakup of cost as follows solely for the purpose of facilitating the comparison of Bids only. The price must be stated separately for each item. (**Annexure-XII**)

- a) Ex-Factory/ Ex-Warehouse/ Ex-Showroom/ off the self price
- b) Packing, Forwarding and Handling charges
- c) Insurance charges
- d) Freight up to destination Institution.
- e) Erection, Assembly, commissioning, incidental service, including testing, training charges.
- f) Tax component (i.e Excise Duty, Sales Tax, GSTIN other levies) payable by the Consignee.
- g) Delivery cost at site (including Tax Component)

5. **Bid Security Deposit :**

5.1 All bids must be accompanied by the bid security @ not less than 1% (One Percentage) of the tender value in shape of demand draft in favor of "Principal, Govt. College of Engineering ,Kalahandi payable at Bhawanipatna" enclosed in sealed envelope, failing which the tender will be rejected.

5.2 The bid security is required to protect the Purchaser against the risk of Malfunctioning of the equipment within the Guarantee period.

5.3 Bidder's conduct which would warrant the security's forfeiture. Unsuccessful bidders' bid security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity prescribed by the Purchaser.

5.4 The successful Bidder's bid security will be discharged upon the Bidder signing the contract.

5.5 The bid security may be forfeited if a Bidder withdraws its bid during the period of bid validity.

6. **Tender paper Cost**
6.1 The cost of Bid documents (non-refundable) in shape of demand drafts issued by any Nationalized Bank shall be drawn in favour of **Principal, Government College of Engineering Kalahandi** payable at Bhawanipatna for **Rs1770/- towards cost of tender paper & inclusive GST.**
7. **Delivery of Goods**
7.1 The delivery of goods shall be made by the supplier in accordance to the order placed/ Notification of Award to the Consignee as shall be detailed in the Schedule of Requirement of Goods.
8. **Inspection/ Test**
8.1 The Purchaser or his representative shall have the right to inspect/ Examine/ test the goods in conformity to contract awarded.
8.2 The inspection/examination/ test may be conducted in the premises of the Supplier or at the goods final destination at the premises of the Consignee, as will be decided by the Purchaser.
The purchaser's right to inspect/ examine/test & where necessary to reject the goods after the goods arrival at the final destination, shall in
8.3 No way be limited or waived by the reason of the goods having been inspected and tested by the manufacturer previously.
8.4 In case of any inspected/ tested goods fail to confirm to the specification/ working condition, the purchaser may reject them and the supplier shall replace/ repair the same free of cost to the purchaser.
8.5 **INSTALLATION & COMMISSIONING:-**
The successful bidder shall visit the schedule place and recommend pre-installation requirements at each place to the Consignee ahead of delivery. The electrical power supply will be provided by the purchaser at the room where the equipment will be installed but the wiring, electrical fittings and accessories, if any, required for installation & commissioning of the equipment from the power supply point to the point of actual installation will be provided by the supplier without any extra cost.
8.6 **DEMONSTRATION/QUALIFIED AND TRAINED CUSTOMER SUPPORT STAFF:**
The bidder should possess qualified and trained customer support staff with ample experience in the required field, who shall impart necessary training/ demonstration to Purchaser's personnel for operation of equipment supplied.
8.6 **REJECTED ITEMS:**
No payment shall be made for rejected supplied items. Rejected items must be removed by the bidders within two weeks of the date of rejection at their own cost and replaced immediately. In case these are not removed, the same will be auctioned by the purchaser (at the risk and responsibility of the suppliers) without any further notice.

- 8.7 **TRAINING:** - Supplier is required to impart training to operate Equipment/ machineries to minimum 2 persons (one Laboratory staff and one faculty) for 7 days for each machinery/ equipment within 15 days of installation at site where the Equipment is installed. The bid price includes the Training & Demonstration charges.
9. **PAYMENTTERMS & PERFORMANCE SECURITY (SECURITY DEPOSIT)**
- 9.1 No advance payment is allowed by the Purchaser to the supplier for any deal.
- 9.2 The standard payment terms(subject to recoveries, if any) upon submission of required documents shall be as follows :
- 9.3 Payment to the successful bidder shall be made only after items are received in good and serviceable condition as per conditions stipulated in the bid documents along with required documents in support of Bills. Ten percent (10%) of the bill amount will be released after successful delivery, commissioning, demonstration & operation of the machineries / equipment & Ninety percent (90%) of the Bill amount shall be paid after satisfactory Acceptance by the heads of the Department. The payment of the bill shall be made after deducting Government dues, statutory recoveries and other deductions, if any. The prevailing rate of income tax and rate of GST on the gross amount of the bill will be deducted from the supplier"s bills. Under no circumstances, interest is payable by the purchaser for any dues to the supplier. The bidder shall be responsible for payment of any charges due to any statutory authorities such as **TDS @ 2% will be deducted on the payment made to supplier of taxable goods and services if the contract value exceeds 2.5 Lakhs.** The supplier shall not raise any claim in any manner after the Bill amounts are cleared against the purchase order. The performance security is 10% of the value of the purchase order in the form of Bank Guarantee from any Nationalized Bank valid for a period of three months beyond the Guarantee/ Warranty period (Total 27 months from the date of demonstration).
- 9.4 **PAYING AUTHORITY:** - The Principal, Government College of Engineering, Kalahandi shall be the paying authority. Payment will be released by the Principal after receipt of Installation/ Supply certificate in prescribed Format (Annexure-XII) from the consignee.
- 9.5 **The Bills / Invoices are to be submitted by the supplier(s) specifying the following minimum details.**
- a) No. & date of Bills/ Invoices.
 - b) No. & date of Supply Order.
 - c) Name & Specification of Item.
 - d) Name of Manufacturer, Model, make/ brand.
 - e) Item-wise quantity, rate & bill amount of that item.
 - f) Total bill amount along with break-up of taxes & duties.

10. **Guarantee / Warranty for supply of tools, equipments and furniture.**

10.1 The Supplier warrants that the Goods supplied under the contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the contract. The goods shall be covered with warranty /guarantee for a minimum period of **24 months** from the date of completion of supply including installation & commissioning. The warranty also includes all accessories related to instruments & equipment quoted for. The firm/ bidder shall provide prompt after-sales services & attend to the complaints/ repair/ breakdown and shall replace all defective parts within a week to prevent disruption of work in the laboratory and the firm shall visit at least three times for preventive maintenance during the warranty/guarantee period. The supplier has to rectify the defects in the items supplied within **7 (seven) days of issue of intimation during the Warranty/ Guarantee period**, failing which an amount of one percent (**1%**) of Performance Security will be forfeited per week of delay. In case of any breakdown during warranty/ guarantee period, the period of warranty/ guarantee shall get extended for the period for which Instrument/ Machinery/Equipment remained out of service (downtime). Guarantee/Warranty Bond shall be furnished in the Format **Annexure –XI in Affidavit form** at the time of execution of Agreement. The cost of spare parts for all replacements has to be borne by the successful bidder during the period of Warranty /guarantee.

11. **Packing**

11.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods, final destination and the absence of suitable handling facilities at all points in transit.

12. **Insurance**

12.1 The Purchaser will not pay separately for transit Insurance. The supplier is completely responsible for delivery of goods in perfect condition and shall replace/ rectify the missing / defective parts if any at his own cost.

12.2 The goods to be supplied under the Contract shall be fully insured (110% of the Ex-Factory/ Ex-shop value of the goods) against loss or damage incidental to manufacture or acquisition, transportation, storage & delivery of the goods from Warehouse / Factory / Ex-shop of the supplier to the delivery on “All Risk” basis including war Risks and Strike causes.

13. **Transportation**

13.1 The Supplier shall be required to meet all transport and storage expenses until delivery of the Goods covered in the contract to the Consignee.

14. **Incidental Services**
- 14.1 The Supplier shall be required to provide any or all of the following
- a) Furnishing of detailed literature/pamphlets/ circuit diagram/ operation & maintenance manual / drawings (as applicable) for each appropriate unit of supplied goods.
 - b) Furnishing of tools required for assembly and / or maintenance of the supplied Goods.
 - c) Performance or supervision of on-site assembly and / or Maintenance of the supplied goods.
 - d) Performance or supervision or maintenance and/ or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty/ guarantee obligations under the contract:
 - e) Training of the Purchaser's personnel at the Supplier's plant and / or on site, in assembly, start up, operation, maintenance and/ or repair of the supplied Goods.
 - f) A maintenance contract for the goods supplied, if required by the user beyond the warranty period shall be executed on mutually agreed terms between the user and supplier. The cost of such maintenance contract shall not be included in the Bid cost.

15. **Taxes and Duties**
- 15.1 The Supplier shall entirely responsible for all Government Taxes, Duties etc. incurred until delivery of the contract goods to the Consignee subject to recovery after words in the bill as claimed in the Bid offer.
- 15.2 The Excise Duty is payable to Manufacturer quoting excisable items, on production of proof thereof, if claimed in the Bid Offer.
- 15.3 GSTIN as applicable is payable, to the suppliers of the State of Orissa if claimed in the Bid offer
- 15.4 C.S.T will be paid to the Suppliers of the outside State other than Odisha , if claimed in the Bid offer
- 15.5 Entry Tax, if paid by the Supplier, at the local (destination head) Corporation / Municipality / NAC is allowed once only on production of money receipt for such payment, if claimed in the Bid offer.

16. **Period of Validity of Bid**
- 16.1 The bid shall remain valid for a period of minimum 90 days for acceptance, from the date of opening of bid as prescribed by the Purchaser.
- 16.2 A bid valid for a shorter period may be rejected, as non-responsive.
- 16.3 In absence of any indication of the date of validity in the bid, it will be presumed that the offer will remain valid for a minimum period as prescribed.

- 16.4 In exceptional circumstances the purchaser may solicit the bidders consent for extension of the period of validity. If agreed upon, the bid security so deposited shall also be suitably extended.
17. **Standards**
- 17.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications and when no applicable standard is mentioned, the Goods shall conform to the latest National/ International standards.
18. **Sealing and Marking of Bids**
- 18.1 The bidders shall submit bids in sealed covers. **The bid security in shape of draft shall be enclosed along with bid, failing which the tender will be rejected.**
- 18.2 **The sealed bid envelope shall be:-**
- a Addressed to the Purchaser at the following address:
To the Principal, Government College of Engineering, Kalahandi, At:Bandopal, Po:Risigaon, Bhawanipatna-766002
- b Bear ‘**PROCUREMENT OF**(as mentioned in the tender notice)
) ‘**DO NOT OPEN BEFORE**’(the last date & time of opening as indicated in tender notice)
19. **Deadline for Submission of Bids.**
- 19.1 Bids must be received by the Purchaser at the address specified no later than the date and time mentioned in the tender notice.
- 19.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids.
20. **Late Bids**
- 20.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, will be rejected and / or returned unopened to the Bidder.
21. **Opening of Bids by Purchaser**
- 21.1 The Technical BID will be opened on 19/08/2019 **at 03.00 P.M.** in the presence of Bidder’s representatives who choose to attend at the date & time of opening mentioned in the tender Call Notice in the following location. **Principal, Government College of Engineering, Kalahandi, Bhawanipatna- 766002.** The Bidders’ representatives who are present shall sign in a register evidencing their attendance.
- 21.2 The Bidders’ name, bid prices, modifications, bid withdrawals and the presence or absence of the requisite bid security if any and such other details as the Purchaser, at its discretion, may consider appropriate will be announced at the opening.
22. **Preliminary Examination**

- 22.1 The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required securities have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
- 22.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the supplier does not accept the correction of the errors, its bid will be rejected. If there is a discrepancy between words and figures, the amount in words will prevail.
- 22.3 Prior to the detailed evaluation, the Purchaser will determine the substantial responsiveness of each bid to the Bidding Documents. For purposes of these Clauses a substantially responsive bid is one which conforms to all the terms and conditions of the Bidding Documents without material deviations. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bids itself without recourse to extrinsic evidence.
- 22.4 Bids received without certified copies of ITCC & STCC/GSTIN valid upto current year issued by competent authority may be treated as non-responsive and liable for rejection
- 22.5 Bids received without the requisite Bid Security shall be treated as non-responsive and shall be rejected.
- 22.6 The Purchaser may waive any minor informality or non-conformity or irregularity in a bid which does not prejudice or affect the relative ranking of any Bidder.

23. **Evaluation and Comparison of Bids**

- 23.1 The comparison shall be of ex-factory/ ex-warehouse/ off-the shelf price of the goods offered from within the Purchaser's country, such price to include all costs as well as duties and taxes paid or payable on components and raw-material incorporated or to be incorporated in the goods, the CIF port-of-entry price of the goods offered from outside the Purchaser's Country.
- 23.2 The Purchaser's evaluation of a bid will take into account, in addition to the bid price and the price of incidental services, the following
- a) Cost of the inland transportation, insurance and other costs as per Clause 4 within the Purchaser's Country incidental to delivery of the goods to their final destination;
 - b) Delivery schedule offered in the bid;
 - c) Deviations in payment schedule from that specified in the General Terms & Conditions of Contract;
 - d) The cost of components, spare parts and service;
 - e) The availability in the Purchaser's country of spare parts and after-sales services for the goods offered in the bid;
 - f) The projected operating and maintenance costs during the life of the equipment / goods;

- g) The performance and productivity of the equipment / goods offered;
- h) The quality and adaptability of the equipment / goods offered;

24. **Award Criteria**

24.1 The Purchaser will award the Contract to the successful Bidder whose bid has been determined as the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

24.2 Quality, durability and adaptability of the equipment/ goods offered suiting to use in Training Practice shall continue to be the overriding factor for selecting any goods and determining the lowest evaluated bid.

25. **Purchaser's Right to Accept any Bid and to Reject any Bid**

25.1 The Purchaser reserves the right to accept or reject any bid and to annul the bidding process and reject all the bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders on the grounds for the Purchaser's action.

26. **Notification of Award**

26.1 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful Bidder in writing by registered letter or by Fax, to be confirmed in writing by registered letter or by speed post, that its bid has been accepted.

26.2 The notification of award will constitute the formation of the Contract.

26.3 The Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security.

27. **Signing of Contract/Agreement**

The successful bidder shall have to sign an Agreement on stamp paper worth Rs.100/-(Rupees one hundred) only purchased in the name of the successful bidder with the Competent Authority of Department in the appropriate form (ANNEXURE-X) within 15 days from the date of issue of Letter of Acceptance(LOA) of bid. The bidder should sign on each page of bid document with seal as a token of acceptance of all terms & conditions of the bid documents. Following documents shall form part of the Agreement: - IFB (Invitation for Bids), terms & conditions of detailed Tender document, detailed technical specifications, Schedule of delivery of goods, price bid, letter of acceptance, Warrantee and Guarantee bond, conditions of contract and other relevant documents. Supply order will be issued after signing of the Agreement.

28. **Resolution of Disputes**

- a) The Consignee & the Supplier should try to resolve the disputes (if any) amicably.

- b) Thereafter, it should be taken up with the Principal, Govt. College of Engineering, Kalahandi, Bhawanipatna.
- c) Thereafter, it may be taken to the proper Court of Law.

ANNEXURE-IA
CHECK LIST FOR ORIGINAL MANUFACTURER
SCHEDULE OF DOCUMENTS TO BE SUBMITTED IN COVER-I
(TECHNICAL BID)

The bidder has to submit the copies of documents as mentioned in checklist with Technical bid.

All the bid documents uploaded by the bidder should be serially page numbered for reference.

Sl. No.	Documents / Certificate	Attached	Page No.
1	Cost of Tender paper	Yes/No	
2	EMD/ Bid security in proper shape as mentioned	Yes/No	
3	Company Registration Certificate (in case of Company registered under Company Act 1956), Partnership deed, duly registered with competent authority (in case of Partnership firm) and documents from appropriate authority depicting the authority/license to manufacture laboratory testing equipment.	Yes/No	
4	Valid ISO certificate.	Yes/No	
5	GST registration certificate.	Yes/No	
6	GST clearance certificate.	Yes/No	
7	PAN card (in the name of Company in case of Company/Partnership firm and in the name of the Proprietor in case of Proprietary firm).	Yes/No	
8	Bid Declaration Form / Verification & Undertaking in affidavit form on stamp paper of Rs 100/- duly signed before Notary or any appropriate Authority as per format in Annexure-II .	Yes/No	
9	Details of make/ brand specification & logo of the machineries & equipment duly shall be filled in Annexure-IV against tendered items.	Yes/No	
10	Performance statement as per Annexure-V with documentary proof such as:- <ul style="list-style-type: none"> • Copy of supply order or certificate of supply from concerned purchaser for tendered 	Yes/No	

	items as indicated in Annexure-III . <ul style="list-style-type: none"> • Copy of supply order or certificate of supply along with proof of satisfactory performance from concerned purchaser for items as indicated in Annexure-III 		
11	No Relation Certificate as per Format in Annexure-VIII .	Yes/No	
12	Details of the bidder"s service center as per format in Annexure-IX	Yes/No	

It is verified that all the Certificates/ information/ documents submitted with this bid are currently valid and have not been withdrawn/ cancelled by the issuing authority. It is clearly and distinctly understood by me/ us that the bid is liable to be rejected if on scrutiny any of these certificates/ particulars are found to be false or invalid. I/We further undertake to produce on demand the original certificates/ particulars/ documents for verification at any stage during the processing of the tender.

Signature of the bidder:

Full name of bidder:

Date:

Place:

ANNEXURE-IB
CHECK LIST FOR AUTHORIZED DEALER/DISTRIBUTOR
SCHEDULE OF DOCUMENTS TO BE SUBMITTED IN COVER-I
(TECHNICAL BID)

The bidder has to submit the copies of documents as mentioned in checklist with Technical bid.

All the bid documents uploaded by the bidder should be serially page numbered for reference.

Sl. No.	Documents / Certificate	Attached	Page No.
1	Cost of Tender paper	Yes/No	
2	EMD/ Bid security in proper shape as mentioned	Yes/No	
3	Manufacturer authorization in prescribed format (Annexure-VII)	Yes/No	
4	Valid Documents of the manufacturer (i.e. Company Registration Certificate (in case of Company registered under Company Act 1956), Partnership deed, duly registered with competent authority (in case of Partnership firm) and documents from appropriate authority depicting the authority/license to manufacture laboratory testing equipment).	Yes/No	
5	Valid ISO certificate.	Yes/No	
6	GST registration certificate.	Yes/No	
7	GST clearance certificate.	Yes/No	
8	PAN card (in the name of Company in case of Company/Partnership firm and in the name of the Proprietor in case of Proprietary firm).	Yes/No	
9	Bid Declaration Form / Verification & Undertaking in affidavit form on stamp paper of Rs 100/- duly signed before Notary or any appropriate Authority as per format in Annexure-II .	Yes/No	
10	Original manufacturer's make, brand specification & logo of the machineries & equipment to be supplied by the bidder against tendered items as in Annexure-IV .	Yes/No	
11	Performance statement as per Annexure-V with documentary proof such as:- <ul style="list-style-type: none"> • Copy of supply order or certificate of supply from concerned purchaser for tendered 	Yes/No	

	<p>items as indicated in Annexure-III.</p> <ul style="list-style-type: none"> • Copy of supply order or certificate of supply along with proof of satisfactory performance from concerned purchaser for items of Annexure-III. 		
12	No Relation Certificate as per Format in Annexure-VIII.	Yes/No	
13	Details of the bidder's service centre as per format in Annexure-IX	Yes/No	

It is verified that all the Certificates/ information/ documents submitted with this bid are currently valid and have not been withdrawn/ cancelled by the issuing authority. It is clearly and distinctly understood by me/ us that the bid is liable to be rejected if on scrutiny any of these certificates/ particulars are found to be false or invalid.

I/We further undertake to produce on demand the original certificates/ particulars/ documents for verification at any stage during the processing of the tender.

Signature of the bidder:

Full name of bidder:

Date:

Place:

ANNEXURE-II
BID DECLARATION FORM / VERIFICATION & UNDERTAKING

Bid Reference No.

From

M/S _____

No.
Dt.

To

The Principal,
Government College of Engineering Kalahandi
AT: KandBandopala, PO: Risigaon, Bhawanipatna
Dist: Kalahandi
PIN 766002
Odisha.

Dear Sir,

1. Having examined the specification enclosed together with the conditions therein, I/ We hereby offer our rate covered therein complete in all respects, as per the specifications, terms and conditions at the rates entered in the attached contract schedule of price (Price bid). The rates quoted against each item are inclusive of all taxes, duties and other charges and inclusive of installation, commissioning, demonstration & training at respective place(s).
2. I/ We hereby under-take to complete the supply within time specified in the schedule.
3. I/ We hereby confirm that we have gone through all the terms and conditions of bid and we agree to abide by all of them.
4. I/ We hereby guarantee for the particulars entered in the schedule attached to the specification.
5. I/ We verify/certify that the scanned copies of the Certificates/ Documents attached herewith are authentic and true copies of the Original Certificates/ Documents and shall produce the Originals for verification within 5 working days from date of opening of bids (Financial bid).
6. **I/ We hereby certify that all the statements/documents furnished in our bid are true, correct and authentic.**
7. I/ We hereby authorize and request any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my /our competency and general reputation.
8. I/ We understand and agree that further qualifying information may be requested and agree to furnish any such information at the request of the Department.
9. I/ We verify that I/ We are in possession of the requisite valid manufacturing licenses/ permits required for the manufacture/ supply/ sale/ distribution of the items and further verify that the said licenses/ permits have not been revoked/ cancelled by the issuing authorities and are valid up-to date.

10. I/ We also certify that I/We have not been declared defaulter, blacklisted or debarred by any State or Central Govt. or Constitutional Authority or Financial institution or Judicial Court or any Govt. Undertaking for supply of substandard quality items/ part supply/ non-supply.

11. I/ We also take Cognizance of the fact that providing misleading or questionable information or failure to furnish correct or true information to you or any other failure to comply with any contractual requirements laid down by you will be considered as a serious breach of the terms & conditions of the Tender and will invite disqualification and other penal action as deemed fit by the Purchaser.

12. I/ We also hereby certifies that neither our firm M/s -----
-----nor any of its constituent partners/ I have failed to execute any supply in India nor any contract awarded to us/ me for such supply order have been rescinded during the last five years.

13. I/ We understand that you are not bound to accept lowest or any bid you receive.

14. I/ We hereby declare that I/We am/are not supplying/ quoting the same item at rate lower than the rate quoted in the bid to any Govt. Organization or any other institute.

15. I/We agree that the Bid Inviting Authority can forfeit the Earnest Money Deposit or Security Deposit and debar me /us for 3(three) years from participation in Tender, if any information furnished by me/us is proved to be false at the time of inspection/ verification and not complying with the bid Terms & Conditions.

Seal:

Date:

Signature of bidder:

Full Name of bidder:

Name & Address of the Firm:

Note: The above declaration shall be made on stamp paper worth Rs.100/- (Rupees one hundred) only in Affidavit form.

ANNEXURE – III
(DETAILED TECHNICAL SPECIFICATIONS
OF THE MACHINERIES & EQUIPMENT TO BE SUPPLIED BY THE BIDDER)

Sl. No.	ITEM NAME AND SPECIFICATION	QTY.
	Refer last Page	

ANNEXURE – IV
(DETAILS (MAKE, BRAND & MODELS WITH SPECIFICATION)OF THE
MACHINERIES &EQUIPMENT TO BE SUPPLIED BY THE BIDDER)

Sl. No.	ITEM NAME AND SPECIFICATION AS PER TENDER	NAME AND SPECIFICATION TO BE SUPPLIED BY THE BIDDER	MAKE / BRAND & MODEL No.	Remark (if any deviation)

ANNEXURE-V
PERFORMANCE STATEMENT

**LIST OF CLIENTS TO WHOM TESTING MACHINERIES/ EQUIPMENT SUPPLIED
DURING THE LAST FIVE YEARS**

Sl. No	Name of the equipment/ machinery proposed to be supplied	Name of Govt. /Govt. Undertaking Organizations/ Govt. Engineering Institution/ Govt. Laboratories to whom supplied.	Purchase Order No. & Date. (Enclose scanned copies of purchase/ supply order)	Page number	Make/ brand & logo	Quantity	Date of completion of Delivery	Reasons for late delivery, if any	Proof of satisfactory performance (Certificate from Govt. / Govt. Undertaking. Organization/ Govt.Engineering Institution/ Govt.Laboratories to whom Equipment supplied to be furnished)	Contact person of the organization and contact number, email and Fax etc. to whom the supply was made.
1										
2										
3										

ANNEXURE-VI

ANNUAL TURNOVER STATEMENT

The Annual Turnover for the last three financial years of M/S _____, who is a manufacturer/dealer of laboratory machineries & equipment are given below and certified that the statement is true and correct.

Sl. No.	Financial Year	Turnover in Cores (Rs) both in words and figures
1		
2		
	Average	

Date:
Place:

Signature of Auditor/
Chartered Accountant

(Name in Capital)

Seal:

Membership No.

ANNEXURE-VII

MANUFACTURES' AUTHORISATION FORM

(FORMAT OF AUTHORISATION TO BE OBTAINED FROM ORIGINAL MANUFACTURER
BY THE AUTHORIZED DEALER/ DISTRIBUTOR)

No. _____ / Date _____ /

To
The Principal
Government College of Engineering,
Kalahandi, Bhawanipatna

Tender No. _____

Dear Sir,

I/We _____ who are established and
reputed manufacturers of Laboratory testing machineries/equipment, having factories at

_____ (Address of Factory) do hereby
certify that M/s. _____ (Name and address of Dealer) is an
Authorized Dealer/Distributor of our company and we authorize it to submit the bid
and sign the contract with you or your representative(s) against the above bid.

I/We hereby extend our full guarantee and warranty as per terms & conditions of
contract for the goods and services offered by the above firm against this bid.

Yours faithfully,

(Full Name and Signature of the
Manufacturer)

Seal/stamp

**Note: This letter of authority should be on the letterhead of the
manufacturer and should be signed by a person, competent and having
the power of attorney to bind the manufacturer.**

ANNEXURE-VIII

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* **related/not related** (*) to any officer of the Principal, Government College of Engineering Kalahandi of the rank of Assistant Professor & above and any officer of the BPUT Odisha. I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and I/We* shall be liable to make good the loss or damage resulting from such cancellation.

I// We* also note that non-submission of this certificate will render my / our* tender liable for rejection.

(*) - Strike out which is not applicable

Signature of the bidder

Full name of the bidder:

Date:

ANNEXURE-IX**DETAILS OF THE BIDDER & SERVICE CENTER**

GENERAL INFORMATION ABOUT THE BIDDER					
1	Name of the Bidder				
	Registered address of the firm				
	State		District		
	Telephone No.		Fax		
	Email		Website		
Contact Person Details					
2	Name		Designation		
	Telephone No.		MobileNo.		
Communication Address					
3	Address				
	State		District		
	Telephone No.		Fax		
	Email		Website		
Type of the Firm					
4	Private Ltd.		Public Ltd.		Proprietorship
	Partnership		Society		Others, specify
	Registration No. & Date of Registration.				
Nature of Business					
5	Original Equipment Manufacturer (OEM)			Authorized Distributor	
	Direct Importer			Authorized Dealer	
6	<p><i>Details of <u>existing</u> Service Centre nearest to Odisha:</i></p> <p><i>Name of Contact Person:</i></p> <p><i>Designation:</i></p> <p><i>Address of Service Centre:</i></p> <p><i>Telephone No.:</i></p> <p><i>Email :</i></p> <p><i>Fax:</i></p>				
<i>Date:</i>		<i>Office Seal</i>		<i>Signature of the bidder/ Authorised signatory</i>	

ANNEXURE-X

**AGREEMENT FOR SUPPLY, INSTALLATION & COMMISSIONING OF
MACHINERIES/ EQUIPMENT**

(Reference- Clause -27 of DTCN)

Bid Reference No.

This Agreement made this day of2018 between M/s

..... having registered office in the State of

.....(hereinafter called the „Supplier” which expression shall, unless excluded in the subject or context, include the heirs, successors, legal representatives, and permitted assigns) of the one part.

&

the Governor of Odisha (hereinafter called the “Governor” which expression shall, unless excluded in the subject or context, include the heirs, successors, legal representatives and permitted assigns) of the other part.

WHEREAS the Governor wants to purchase the goods mentioned in the schedule and has accepted a bid by the supplier for supply, installation & commissioning of machineries/ equipment @ sum of ---

-----Contract price in words and figures (hereinafter called the contract price).

NOW THESE PRESENT WITNESSES AND IT IS HEREBY AGREED AS FOLLOWS:

1. That the time shall be the essence of the contract and the supplier shall supply the goods in the schedule completely at..... (Place) on or before the date....., failure to do which will entitle the Governor to rescind the contract immediately.

2. That the goods shall be of the specifications and price mentioned against each. Any variation on inspection will entitle the Governor to refuse the consignments either in whole or in part, as the case may be, the whole, if the part renders it useless.

3. That the goods shall be inspected at(place) in the presence of the officers of both Parties duly Authorized in that behalf on a day fixed in a notice by either of the parties, provided such day is not postponed for more than a period of two months after the date given in the notice. Default by the Supplier shall disentitle him to raise any objection subsequently to the result of inspection made by the Governor in his absence and claim any compensation on that account.

4. That the supplier shall guarantee durability of the goods for a period of 24 (twenty four) calendar month from the date of completion of supplies and installation in the case of Machineries and any damage, done to the goods in the usual course of use or any deficiency, detected in them subsequent to such completion & installation and during the period aforesaid shall be made good to render due service at the cost of supplier within a period of seven days from the date of issue of the notice in that behalf. Failure to do so shall be deemed that the supplier has no intention to discharge the obligation and thereupon, the amount of security, deposited separately or withheld from his bills, shall stand forfeited to the Governor as per terms and conditions. The supply of Machines and equipment shall be deemed to be complete only after final approval of the officer duly Authorized on inspection whose decision shall be final and in case of Machineries exactly in the same manner and installation which would include successful test working.
5. The goods shall be duly packed & insured by the supplier for transit and be dispatched at the risk of the carriers and the Governor shall not be responsible for any loss or damage during the transit or at any time prior to inspection and approval.
6. That the price of goods shall be paid on completion of supplies, installation & commissioning including test working as per payment terms and conditions.
7. That any damage or deficiency if not removed during the stipulated period by the Supplier may be removed by the Governor at his cost to be reimbursed by the Supplier. Any amount Payable to the Governor hereunder shall be recovered as Public Demand under the Odisha Public Demand Recovery Act, 1963 and shall bear 6% interest per annum till certificate of recovery is filed.
8. That the supplier shall deposit Rs.---- -----towards Initial Security Deposit at the time at the time of acceptance of Tender for due performance of the covenants hereof and such money shall be forfeited to the Governor in case of breach of any of the covenants.
9. That the dispute arising hereunder shall be resolved in following manner:
The purchaser & the supplier should try to resolve the disputes, if any, arising out of the contract, amicably between them.
10. That Sri..... is authorized by the Governor and Sri..... on behalf of the supplier to execute the deed.
11. The cause of action hereunder shall always be deemed to arise at -----.
12. The stamp duty shall be borne by the supplier.

13. This shall be read with terms & conditions of DTCN along with other relevant bid documents which will form part of this Agreement.

SCHEDULE OF GOODS

Sl. No	Name of Goods	Specification with make & model	Qty.	Price agreed per unit

IN WITNESS WHEREOF the parties hereto have signed this deed this day.....
of..... mentioned against the signature of each in the presence of
.....

Signed, sealed and delivered by the said
----- (for the purchaser)
in the presence of -----

Signed, sealed and delivered by the said
----- (for the supplier)
in the presence of -----

Note: The agreement shall be done on stamp paper worth Rs.100/- only.

ANNEXURE-XI

GUARANTEE/WARRANTY BOND

We hereby declare that the machines/equipment sold to the Department under this contract shall be of the best quality and workmanship, shall be strictly in accordance with the specification and particulars contained / mentioned in the purchase Order No. dt. and leaflet submitted by us and hereby guarantee that the said machines/equipment would continue to confirm to the description and quality aforesaid for a period of **24(twenty four) months** from the date of supply of the same to the Department notwithstanding the fact that the Department may have inspected and/or approved the said machines/equipment. If during the aforesaid 24(twenty four) months, the said machines/equipment be discovered not to confirm to the description and the quality of the aforesaid and have deteriorated, the decision of the Department in this behalf will be final and conclusive and the Department reserves the right to reject the said machines/equipment or such portion thereof as may be discovered not to confirm to the said description and quality. On such rejection, the machines/equipment will be at our risk and all the provisions herein contained relating to rejection of goods shall apply. We shall, if called upon to do, replace the machines/equipment or such portion thereof as rejected by this purchaser, otherwise, we shall pay the purchaser such damages as may arise by reasons of breach of condition herein contained. If the machines/equipment supplied either do not operate properly or efficiently, we will replace the same free of cost. The parts replaced must be new parts or equivalent in performance to new parts. In the event of any complaint of the defective machines / equipment supplied to the purchaser, Principal, shall investigate and determine whether a part/parts/sub-assembly/assembly/Engines was/were defective and if so, any damage has also been caused by it to other parts, in such cases the decision of the Principal is final and binding. In case of any break-down during Warranty/Guarantee, period the period of warranty shall get extended for the period for which the machinery/ equipment remained out of service.

Signature with Seal of Supplier

Full name of the Supplier:

Note:

- i. The Guarantee/Warranty bond shall be done on stamp paper worth Rs.100/- only in Affidavit form.**
- ii. In case of authorized distributor/ dealer, the original manufacturers shall also sign the guarantee/ warrantee bond.**

ANNEXURE-XII
DETAILS OF INSTALLATION CERTIFICATE
(Reference- Clause 31 of DTCN)

Organisation Name:				
Equipment Details				
Name of the equipment:		Purchase Order No:		
Make/Manufacturer:		Purchase Order Date:		
Model:		Purchase amount of the equipment:		
Quantity:				
Installation Start Date:		Installation Complete Date:		
Warranty/ Guarantee Start Date:		Warranty/ Guarantee End Date:		
Preventive Maintenance Schedule(Specify Year &Month)				
YEAR	Visit 1	Visit 2	Visit 3	
Contact Details				
Name of the Supplier:				
Name of Service Engineer with his/ her mobile number:				
Service centre manager's name with mobile number:				
Service centre address:				
ACCESSORIES \ SUPPLIED				
Sl. No.	Item	Qty.	Serial No.	Remarks
To be filled by Consignee				
Whether a digital photograph of the installed equipment in the presence of the consignee appended?				Yes/No
Whether the demonstration of the equipment/ machinery with accessories on the technical specification/ key features was conducted to the satisfaction at the time of installation?				Yes/No
Whether the original printed operation manual, maintenance manual etc. furnished along with the machine/equipment?				Yes/No
Whether Calibration Certificate, along with Testing Machine/ Equipment is furnished.				Yes/No
Whether training was conducted to the satisfaction at the time of installation?				Yes/No
Recommended to release 90 % (ninety percent) payment		The equipment is working satisfactorily.		
Yes	No	Yes	No	

Signature of the
Consignee Name
in capital

Annexure-XIII

PRICE SCHEDULE FOR Equipments Package Wise

Bid No. _____

Category _____

1. Item No. :
2. Item with specification :
3. Total quantity to be delivered :
(Approx. quantity as shown in schedule of requirement)
4. Bid Price.
 - a) Rate per unit at delivery point :
(excluding tax component)
 - b) Delivery cost at site (3 x 4a) :
5. Delivery period offered:
6. Break up Price (of SL – 4b)
 - a) Ex-factory/Ex-warehouse/Ex-show room/off the shelf price :
 - b) Packing, forwarding & handling charge :
 - c) Insurance charge (if any) :
 - d) Transportation cost up to institution :
 - e) Erection, Assembly, Commissioning & incidental service :
 - f) Delivery cost at site (excluding tax component)
(Add 6a + 6e) = 4b.
7. Tax Components.
 - a) Excise duty (if any) :
 - b) GSTIN/Sales Tax and other levies (if any):
 - c) Total tax component (Add 7a + 7b):
8. Delivery cost at site (including tax component)
(Add 6f + 7c)

Signature of the Bidder

ANNEXURE-XIV

Format of PRICE BID of Equipments/Components

(In letterhead of the supplier with seal)

Date: _____

To: _____

Package Code:

Sl. No	Description of goods \ (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. _____ (Amount in figures) (Rupees _____ amount in words) within the period specified in the Invitation for Quotations.

We confirm that the normal commercial warranty/ guarantee of _____ months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier

Name: _____

Address: _____

Contact No: _____

Note: This form is compulsory and should be submitted package wise else bid will be rejected.

ANNEXURE-III
TECHNICAL SPECIFICATION

Package-1 Code: TEQIP-III/2019/OD/geck/78 (DSP TRAINER KIT)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	DSP TRAINER KIT	TMS320C6713 DSK Board Code Composer Studio for C6713 DSK USB Cable AC Power Cord(s) and Power Supply Quick Start Guide Technical Reference (includes schematics) Customer Support Guide	10

Package-2 code: TEQIP-III/2019/OD/geck/79 (DSO)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	DSO	Real Time Bandwidth : DC-100MHz simultaneously on all channels No. of Channels : Two channels Sample Rate (Max.) : 2 GSa/sec half channel interleaved, 1 GSa/sec all channels Record Length : 20 kpts half channel interleaved, 10 kpts all channels Vertical Resolution : 8 bits Vertical Sensitivity :2 mV to 10 V per division Time Base Range :2 nsec to 50 sec per division Time Base Accuracy :± 50 ppm Max. Input Voltage :CAT I 300 Vrms, 400 Vpk; transient overvoltage 1.6kVpk Triggering : Force, Edge, Video, Pulse width, Alternate Analysis Modes : Normal, Averaging, Sequence, Peak detect, Roll Measurements : Automatic Measurements, Time and Voltage Cursors, Math (Add, Subtract), FFT Display : LCD (Colour) Format : Y-T and X-Y Power Supply :100-240 VAC, 50/60 Hz ± 10% I/O Interface :USB, Printer compatibility and software for waveform analysis Standard Accessories to be supplied :Two 10X Probes, Power Cord, Manual, Calibration Certificates	15

Package-3 Code: TEQIP-III/2019/OD/geck/80 (FUNCTION GENERATOR)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	FUNCTION GENERATOR	Frequency Range : 1Hz to 1MHz in 6 decade ranges Maximum Sine Wave Output of 30V p-p Maximum Square Wave Output of 20V p-p Output impedance : 600 ohm Rise and Fall Time <100ns Digital Readout of Frequency Square wave symmetry : Duty cycle of square wave output is continuously adjustable from 0% to above 70% External Counter Facility Built-in Attenuator upto 60dB in 20, 40, 60 dB steps Power : 230V AC $\pm 10\%$, 47-53Hz. All other required accessories with instruction manual.	15

Package-4 Code: TEQIP-III/2019/OD/geck/81 (Universal Electronics Trainer)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	Universal Electronics Trainer	Power Supply: 1. Input: 180 V to 250 V AC 50 Hz 2. Output: • 5 Volt $\pm 3\%$ @ 600 mA Protection : Over load trip (reset by power off 30 Sec.) • ± 15 V $\pm 3\%$ @ 200 mA Protection : Constant current on over load • Variable 0 to 30 Volt @ 100 mA Protection : Constant current on over load • A.C. 12 V-CT-12 V @ 200 mA Should have 7 segment display unit, LED display, bread board and switches, suitable for conducting Analog and Digital Experiments Potentiometer (5K, 10 K, 50 K, 100 K, 500 K, 1 M)	12

Package-5 Code: TEQIP-III/2019/OD/geck/82 (POWER SUPPLY)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	Power Supply1	0-30V section: Output voltage : 0-30V DC continuously variable (by coarse and fine adjustment) Load current: 0-2 Amps Regulation Line: +/-0.05% Regulation Load: +/- 0.05% Ripple: Less than 1mV Protection: Overload & Short circuit protection is essential Display : 3 ½ digits for voltage display	14
2	POWER SUPPLY 2	5V section: Load current: 2 Amps (max.) Regulation Line: +/-0.1% Output voltage: +5V Protection: Overload & Short circuit protection is essential.	10
3	Power Supply3	+/-15 V section: Output voltage: +/-15V Load current: 500 mA (max.) Regulation Line: +/-0.1% Ripple: Less than 1mV Protection: Overload & Short circuit protection is essential	5

Package-6 Code: TEQIP-III/2019/OD/geck/83 (Microcontroller)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	AVR Microcontroller development board	AVR Microcontroller development board	3
2	PIC Microcontroller development board	PIC Microcontroller development board	3
3	Arduino Microcontroller development board	Arduino Microcontroller development board	5
4	8085 Microprocessor Kit	8085 microprocessor kit	3

Package-7 Code: TEQIP-III/2019/OD/geck/84 (Multimeter)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity																																																																																				
1	Digital Multi-meter	Display : 4 1/2 digit DC Voltage Range :0 - 600V (0-1000V with accuracy of $\pm 0.1\%$ of reading) AC Voltage Range : 0 - 600V(0-750V with accuracy of $\pm 0.1\%$ of reading) DC Current Range : 0 – 10A(0-20A) AC Current Range :0 -10A(0-20A) Resistance Range : 0 - 60M Ω Capacitance Range :0 - 10mF Frequency Range :0 – 100kHz Diode Test, hFE Test, Continuity Test, Low Battery Indication: Approximately less than 4.4 V Duty Cycle Measuring, Data Hold, Auto Power Off Function Protection, Operation Method Manual or Auto Range. Accessories: Test leads, Instruction manual.	24																																																																																				
2	ANALOG MULTIMETER	<table border="0"> <thead> <tr> <th>Function</th> <th>Full scale value</th> <th>Accuracy</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>DCV</td> <td>0.1</td> <td>$\pm 5\%$ against full scale</td> <td>Input impedance 20kohm/V</td> </tr> <tr> <td></td> <td>0.25 / 2.5 / 10 / 50</td> <td>$\pm 3\%$ against full scale</td> <td>250 / 1000</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Input impedance 9kohm/V</td> </tr> <tr> <td>DCA</td> <td>50micro</td> <td>$\pm 5\%$ against full scale</td> <td>Input impedance 40kohm/V</td> </tr> <tr> <td></td> <td></td> <td></td> <td>ACV 10 / 50 / 250 / 750</td> </tr> <tr> <td></td> <td></td> <td></td> <td>$\pm 4\%$ against full scale</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Input impedance 9kohm/ V</td> </tr> <tr> <td></td> <td></td> <td></td> <td>30Hz ~100kHz within $\pm 3\%$ f.s. (AC10V range)</td> </tr> <tr> <td></td> <td></td> <td></td> <td>DCA 50micro $\pm 5\%$ against full scale*1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Voltage drop 0.1V 2.5m / 25m / 0.25 *1</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Voltage drop 0.25V Ohm 2k / 20k / 200k / 2M (X1/X10/X100/X1k) $\pm 3\%$ arc</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Center value 20Ω Max. value 2kΩ Release voltage 3V</td> </tr> <tr> <td></td> <td></td> <td></td> <td>200M(*100k) $\pm 5\%$ arc C 10 microF</td> </tr> <tr> <td></td> <td></td> <td></td> <td>-----*2</td> </tr> <tr> <td></td> <td></td> <td></td> <td>dB -10dB ~+22dB(for 10V AC)</td> </tr> <tr> <td></td> <td></td> <td></td> <td>~+62dB -----Input impedance 9kohm/V</td> </tr> <tr> <td></td> <td></td> <td></td> <td>LI 0 ~150mA at X1 range 0 ~15mA at X10 range 0 ~1. 5mA at X100 range 0 ~150mA at X1k range 0 ~1. 5 microAmp at X100k range</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Current across test pins</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Use the optional probe</td> </tr> <tr> <td></td> <td></td> <td></td> <td>HV (DC high volt) DC25kV HV-10T</td> </tr> </tbody> </table>	Function	Full scale value	Accuracy	Remarks	DCV	0.1	$\pm 5\%$ against full scale	Input impedance 20kohm/V		0.25 / 2.5 / 10 / 50	$\pm 3\%$ against full scale	250 / 1000				Input impedance 9kohm/V	DCA	50micro	$\pm 5\%$ against full scale	Input impedance 40kohm/V				ACV 10 / 50 / 250 / 750				$\pm 4\%$ against full scale				Input impedance 9kohm/ V				30Hz ~100kHz within $\pm 3\%$ f.s. (AC10V range)				DCA 50micro $\pm 5\%$ against full scale*1				Voltage drop 0.1V 2.5m / 25m / 0.25 *1				Voltage drop 0.25V Ohm 2k / 20k / 200k / 2M (X1/X10/X100/X1k) $\pm 3\%$ arc				Center value 20 Ω Max. value 2k Ω Release voltage 3V				200M(*100k) $\pm 5\%$ arc C 10 microF				-----*2				dB -10dB ~+22dB(for 10V AC)				~+62dB -----Input impedance 9kohm/V				LI 0 ~150mA at X1 range 0 ~15mA at X10 range 0 ~1. 5mA at X100 range 0 ~150mA at X1k range 0 ~1. 5 microAmp at X100k range				Current across test pins				Use the optional probe				HV (DC high volt) DC25kV HV-10T	2
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		probe HFE 1000 at X10 range HFE -6T probe	
3	Loading inductor	0-50/100/150mH, 2A	6
4	Cut section view of different machine	DC machine	1
5	Cut section view of different machine	single phase induction motor	1
6	Cut section view of different machine	3phase squirrel induction motor	1
7	Cut section view of different machine	3 phase slip ring induction motor	1
8	Cut section view of different machine	Synchronous machine	1
9	SPDT switch	300V, 20A	2
10	FPDT switch	470V, 20A	2

Package-8 Code: TEQIP-III/2019/OD/geck/85 (Voltmeter and Ammeter)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	AMMETER 1	0-1/2 A, AC, MI type	4
2	AMMETER 2	0-1/2 A, AC, MC type	1
3	AMMETER 3	0-5/10 A, AC, MI type	5
4	AMMETER 4	0-5/10A, MC type	2
5	VOLTMETER1	0-150/300V, AC, MI type	5
6	VOLTMETER2	0-150/300V, DC, MC type	4
7	Digital voltmeter	0-150/300V	4
8	Wattmeter 1	LPF, 0-150/300V, 1/2A	3
9	Wattmeter 2	LPF, 0-150/300/600V, 5/10A	4
10	Wattmeter 3	LPF, 0-75/150/300V, 10/20A	3

11	Wattmeters	UPF, 0-300V, 5-10A	5
12	Galvanometer(sensitive)	Sensitivity-50 μ A Deviation-5%	5
13	Rheostat1	0-150 Ω , 1.5A	5
14	Rheostat2	0-60 Ω , 2A	5
15	Rheostat 3	0-100 Ω , 0-5A	4
16	Rheostat 4	0-250 Ω , 5A	2
17	Rheostat 5	0-600 Ω , 5A(rotary type)	4
18	DECADE RESISTANCE BOX	1-1K Ω , 300V	4
19	DECADE CAPACITANCE BOX	100nF-100 μ F, 300V	4
20	DECADE INDUCTANCE BOX	0-900mH, 300V, 100mA	4
21	Low value standard resistor	0.1-1 Ω , 5A	5
22	Digital Ammeter	0-5/10A	4
23	Digital Ammeter	0-1A	2
24	Digital Ammeter	0-100A	2
25	Digital Ammeter	0-100mA	4
26	Digital voltmeter	0-30V	4
27	Tongue tester	0-100A	1
28	MEGGAR	1000M Ω , 1000V	1
29	Complete drilling and hand tool kit	Power drill, 600W	2
30	Hand tool kit	Wire stripper Cutter Screw driver Tester Plier	10
31	Rotary variable standard capacitor	1nf-10 μ F	3

Package-9 Code: TEQIP-III/2019/OD/geck/86 (Firing Circuit)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	Single Phase PWM Inverter Kit	400V,5A	1
2	Single phase firing circuit	Single phase firing circuit	3
3	Firing Circuit	Three phase firing circuit	2
4	Analog Tachometer	(0-9999)rpm	1
5	Digital Tachometer	(0-9999)rpm	2
6	Patch chords	5Amp	100
7	Cartridge Fuses 1	1A	100
8	Cartridge Fuses 2	5A	100
9	Cartridge Fuses 3	10A	100
10	Cartridge Fuses 4	(0-500)mA	50
11	Cosine control triggering scheme kit	Cosine control triggering scheme kit	2
12	Forward and Flyback converter	230V/30V, 5A	1
13	Three phase PWM Inverter Kit	400V,10A	1
14	Single Phase PWM Inverter Kit	230V,2A	1
15	single phase Full wave controlled converter Kit	230V,5A	1
16	BUCK Converter and BOOST converter	(50-150V), 2Amp	1
17	SCR, POWER MOSFET, IGBT, TRIAC KITS	200Volts, 2Amp	2

Package-10 Code: TEQIP-III/2019/OD/geck/87 (Measurement)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	RLC Circuit	<ol style="list-style-type: none"> 1. On board DC Regulated Power Supply 5V OR 12V at 250mA. 2. On board Square Wave Generator. 3. On Board RL and RC Circuit Provided With Circuit Diagram. 4. Components are mounted behind the panel 5. Adequate no. of patch cords stackable from rear both ends 4mm spring loaded plug length ½ meter 	1
2	Series and parallel resonance trainer kit	<ol style="list-style-type: none"> 1. Inductances made on ferrite cores, selectable by a switch 2. Capacitances with low loss factor, selectable by a switch 3. Resistances, selectable by a switch 4. Two Square / Digital / Round meters for voltage & current measurement 5. Adequate no. Of patch cords stackable from rear both ends 4/ 2 mm spring loaded plug length ½ meter 	1
3	Active and passive low pass and high pass filter trainer kit	<ol style="list-style-type: none"> 1. Set of inbuilt resistors and capacitors with different magnitudes 2. Inbuilt IC741 OP-AMP 3. On board +12V and -12 V DC power supply 4. Required number of patch chords 	2
4	Active and passive band pass and band reject filter trainer kit	<ol style="list-style-type: none"> 1. Set of inbuilt resistors and capacitors and inductors with different magnitudes 2. Inbuilt IC741 OP-AMP 3. On board +12V and -12 V DC power supply 4. Required number of patch chords 	2
5	Kelvin's Double Bridge Trainer Kit	<ol style="list-style-type: none"> 1. On board oscillator section. 2. On board circuit for designing Kelvin's double Bridge 3. On board amplifier section 4. On board unknown Resistors for conducting the experiment 5. On board Speaker interface 6. Test points are provided to analyse signals at various points 7. ON/OFF switch and LED for power indication. 	1

		8. Bare board Tested Glass Epoxy SMOBC PCB is used. 9. Block Description Screen printed on glassy epoxy PCB 10. All interconnections are made using 2mm banana Patch cords 11. Supplied with User manual and patch cords 12. With built-in power supply 13. Enclosed in a wooden/plastic box	
6	Maxwell's Bridge trainer Kit.	1. The kit contains a bridge with provision for connections of capacitors and an unknown inductor. In built ac supply [1 KHz and 2 Vpp] and dc supply [+5 V] on board. Two nos dial resistances [50 ohm to 200 ohm] and [1 ohm to 11 ohm] in step. A dc and ac null detector using selector switch. A dial type variable capacitor [range 0.2 μ F ro 1.2 μ F] and six nos. unknown inductors [range 1 mH to 12 mH].	1
7	Scherring's Bridge Trainer Kit	1.Potentiometer 1K &10 K helical 2.Fixed resistance 10M, 1M, 100K, 10K, 1K, 100 & 10 Ω 3. Fixed capacitance of 100 μ f, 10 μ f, 1 μ f, 100nf, 10nf, 1nf& 100pf available through selector switch 4.Variable power DC supply:0-15V 5.Test points: 3nos 6.Power supply: 230V \pm 10%, 50/60 Hz	1
8	Current Transformer	1.Primary current:- 10A 2.Secondary current:- 300mA 3.Frequency-50 Hz 4.Operating temperature:-(-40 to 85 $^{\circ}$ C	3
9	Potential transformer	1.Input voltage:230 V AC single phase, terminal(s): N-L1 400 V AC phase to phase, terminal(s): L1-L2 2.Output voltage: 230V AC 3.Ambient temperature of operation: -20...50 $^{\circ}$ C 4.Rated power: 400VA	6
10	Transformers 1	1.Rated voltage: 230/30, 230/230 2.Rated Power : 1KVA	2
11	Strain Guauge	1.Capacity: 40- 50 Kg 2.Excitation voltage $V \leq 10V$ 3.Operating temperature: 0-50 $^{\circ}$ C 4.Output sensitivity mv/v: 1.0 \pm 0.1	2
12	LVDT Kit	1.Supply voltage: 12V, 24V 2.LVDT supply voltage: 1.2Vrms, 3Vrms 3.Output signal: 0-5V DC, 0-10V DC, \pm 5V DC, \pm 10V DC 4.Supply frequency: 2.5KHZ, 5.0KHZ	2

13	RTD, Thermocouple	1.Type: pt100 2.Measuring range: -20 ⁰ -200 ⁰ C 3.Cable length: about 2 meters 4.Probe length: 50 mm 5.Probe diameter: 5mm 6.Probe material: stainless	4
14	Torque sensor	1.Torque range- 0-10NM 2.Voltage output- 0-±10V 3.Internal resistance- 100Ω 4.Supply voltage-10- 220V DC 5.Frequency output 10KHZ±5KHZ	2

Package-11 Code: TEQIP-III/2019/OD/geck/88 (Electric Drives)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	Single Phase Dual converter	230V, 5A	1
2	Four quadrant chopper with DC Motor kit	220V, 5Amp	1
3	Two port network Z ,Y , ABCD and H parameter trainer kit	1.Instrument comprises of DC IC Regulated Power Supplies 0-15 V/250 mA 2.On Board Ac Supply 15 V 3.Two Square / Digital / Round meters for voltage & current measurement 4.T and PIE Network provided on the board 5.Variable Resistor Using Band switch is mounted on the board 6.Required no of patch chords	1
4	DC and AC transients for R- L, R-C and R-L-C circuits using storage oscilloscope	1.On board DC Regulated Power Supply 5V OR 12V at 250mA. 2.On board Square Wave Generator. 3.On Board RL and RC Circuit Provided With Circuit Diagram. 4.Components are mounted behind the panel 5.Adequate no. of patch cords stackable from rear both ends 4mm spring loaded plug length ½ meter	1

Package-12 Code: TEQIP-III/2019/OD/geck/96 (CONTROL SYSTEM-1)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	DC motor driven position	•12 V, 1A, 1500 RPM PMDC Motor (with gear ratio 30:1)	1

	control system.	<ul style="list-style-type: none"> •Provision for positive & Negative Tachogenerator feedback Servo potentiometers with full 360° rotation •4 Quadrant MOSFET chopper with driver for forward & reverse direction •Built-in 3½ digit display for signal measurements (actual & reference position, voltage) •Calibrated dials for reference and output position: resolution 1° •PI Controller with adjustable Gain & Integral Time •Accessories: Test leads, Instruction manual 	
2	Two phase ac servomotor trainer kit (Provision to compute TF of the motor, to plot load- torque characteristics).	<ul style="list-style-type: none"> •100 W, 2-phase AC Servomotor with MW voltage 230V AC, CW voltage (0-230)V ac •Loading Arrangement: Belted or small generator loading •Display: Built in 3½ digit display for speed, CW current & CW voltage measurement. •Phase shifting transformer to provide phase shift between MW & CW •Accessories: Test leads, Instruction manual 	1
3	Lag, lead & lag-lead compensator kit (Provision to plot frequency response characteristic of the compensators & the compensated system).	<ul style="list-style-type: none"> •Uncompensated system. •Built-in square and sine wave generators •Compensation network implementation through external R&C component add-on •Accessories: Test leads, Instruction manual 	1
4	Servo Motor Motor	<ul style="list-style-type: none"> •12 V, 1A, PMDC Motor with speed range (0 – 1500) RPM •Loading Arrangement: Eddy Current type •Electronic Tachogenerator Feedback •Built-in sine ,square and ramp wave generators with provision to vary frequency, amplitude, offset and frequency range •Controller: PID Controller with adjustable Gain, Integral Time & Derivative Time and option to choose P, P+I & P+I+D control action. •Display: 3½ digit display for set & actual speed, armature voltage & armature current •Accessories: Test leads, Instruction manual 	1
5	transfer function analyzer	<ul style="list-style-type: none"> •Simulated first, second and third order system of type-0 and type-1 •Built-in square and sine wave generators •Calibrated variable gain amplifier •Provision for disturbance inputs •Accessories: Test leads, Instruction manual 	1

6	Temperature control system with on/off & PID controllers. (Provision to obtain time domain response characteristics of the temperature control system and validate the effect of controllers)	<ul style="list-style-type: none"> •Temperature Control System: 25W oven fitted with IC / RTD temperature sensor. •Operating Temperature: Preferably (0 - 90)° C •Controller: PID Controller with adjustable Gain, Integral Time & Derivative Time and option to choose P, P-I & P-I+D control action. •PC Based, compatible with MATLAB / SIMULINK •Accessories: Test leads, Instruction manual 	1
7	Relay control system to analyze nonlinearities (Provision to obtain the characteristics in phase plane for Dead Zone, Hysteresis, Saturation & their combination non linearity)	<ul style="list-style-type: none"> •Simulated electronic relay using high speed IC's •Simulated 2nd order linear plant •Nonlinearities: Dead zone (0-600)mV , Hysteresis (0-500)mV •Built-in square and sine wave generators with amplitude (0-1) V & frequency (1 Hz to 1kHz) •Accessories: Test leads, Instruction manual 	1

Package-13 Code: TEQIP-III/2019/OD/geck/97 (CONTROL SYSTEM-2)

SL. NO	KIT/ SET UP REQUIRED (PURPOSE)	DETAIL SPECIFICATION	Quantity
1	Microprocessor based stepper motor control (Provision to plot the dynamic characteristics)	<ul style="list-style-type: none"> •Stepper Motor: Torque: 2.8 Kg-cm, Step angle: 1.8°, Power: 12V, 1A/phase •Stepper motor operation through pulse circuit & 8085 microprocessor kit •Servo Potentiometer •8085 microprocessor kit with built-in programs in EEPROM & required peripherals to control stepper motor •Accessories: Test leads, Instruction manual 	1
2	Study of temperature transducers (To plot the characteristic of Thermistor (PTC & NTC), Thermocouple, AD590 sensors)	<ul style="list-style-type: none"> •Temperature Control System: 25W oven with digital display •Operating Temperature: Preferably (0 - 150)° C Transducers: Chromel - Alumel thermocouple, Copper - Constantan thermocouple, RTD, Thermistors (PTC, NTC) & Semiconductor sensor (AD590). •Required signal conditioning circuits. •3½ digit display for measured quantities •Accessories: Test leads, Instruction manual 	1
3	Level Control System (To study the level control system & validate PID)	<ul style="list-style-type: none"> •System: Transparent process tank of (5 litres) with graduated level scale, Rust proof water reservoir of 10 litres capacity & drain valve fitted with process tank to give disturbance to the process. 	1

	controller for the system)	<ul style="list-style-type: none"> •RF Capacitance type level probe to sense the level up to 250mm with required signal conditioning circuits •Controller: PID Controller with adjustable Gain, Integral Time & Derivative Time and option to choose P, P-I & P-I+D control action. •PC Based, compatible with MATLAB / SIMULINK •Accessories: Test leads, Instruction manual 	
4	Magnetic Levitation System (To determine TF & design controller to maintain stability of the system)	<ul style="list-style-type: none"> •Object suspended in air by magnetic force. •Provision for PD and lead compensation with different parameter •PC Based, compatible with MATLAB / SIMULINK •Accessories: Test leads, Instruction manual 	1

Sd/-
Principal
GCEK Bhawanipatna